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ABSTRACT

The major purpose of this research project, conducted as a part of the Huntsville-Madison County Education Improvement Program, was to generate basic data in order to determine the effect of a preschool intervention program on a population of socioeconomically disadvantaged children. Specifically, cognitive, demographic, learning, material, method, perceptual, and teacher characteristic data were considered to be of prime importance. The first generalization that may be drawn from this extensive research is that such preschool programs may and frequently do have positive effects on the cognitive functioning of economically deprived children. However, there is no single program, curriculum, or approach that appears to provide outstanding advantages. tTeacher personality factors, organizational skills, and teaching ability appeared to play the decisive role in children's performance. Observations made of classroom procedures and of reactions to teacher in-service meetings tended to point to morale and commitment to the programs as highly influential factors influencing teachers' reactions to the program and their attitudes toward the children. This may be of special importance in such programs as this because of their experimental nature. (Author/JM)

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November 18, 1971

The Huntsville Public School System has been privileged to serve as the administrative agency for the Huntsville-Madison County Education Improvement Program.

The cooperative relationship which characterized the joint efforts of area business and education leaders to secure Ford Foundation funding has been sustained and demonstrated throughout the five years of program operation.

The Ford Foundation funded project has added new dimensions to the educational offerings in the Huntsville area. Utilizing a multidiscipline team approach in meeting the needs of children, the program has through example and experience provided the impetus and the climate necessary to effect change within the established educational systems.

EIP has demonstrated substantial success in statistically measurable areas as well as in the affective domain. We believe that the program has significantly improved the quality of life as well as the educational opportunities for hundreds of economically deprived children in the Huntsville and Madison County area.

We are proud and grateful to have participated in such an exciting and challenging undertaking.

V. M. Burkett
Superintendent
Huntsville Public Schools

CUMULATIVE RESEARCH BULLETIN

A Summary of the Four Year Research Program Conducted as a Project of the Huntsville-Madison County Education Improvement Program

by

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The cover photo is by Ken Elkins.

INTRODUCTION

The major purpose of the research project conducted as a facet of the Huntsville-Madison County Education Improvement Program (EIP) was to generate basic data in order to determine the effect of a preschool intervention program on a population of socioeconomically disadvantaged children. Specifically, cognitive, demographic, learning, material, method, perceptual, and teacher characteristic data were considered to be of prime importance.

The Ford Foundation, during the second year of the project, insisted that an evaluation project be instituted. Program directors decided that independent evaluation would be of greater benefit to the program than would an in-house program. The evaluator feels that there is real merit to this proposition. Program evaluation results in which internal evaluation is conducted very often appear to be biased in claiming almost impossible advantages for the programs.

Independent evaluation, on the other hand, has the disadvantage of lack of proximity to the program — the daily operations and the problems faced by program personnel. In this researcher's judgement, independent evaluation appears less likely to suffer from bias due to self-involvement with the project and therefore must be considered the better of the two monitoring procedures.

A further limitation as it relates to evaluation of educational programs is to be found in the problems of action as compared to experimental research gains. Obviously in process programs do not lend themselves to optimal control and consequently, tend to either under- or overestimate the effects of manipulation of independent variables. Yet it may be argued that any experimental process seeking to determine educational advantage must ultimately stand the test of real classrooms.

The problem of research lag is also important. The Huntsville experience suffered from the same problems that other programs have had. Data collected at the end of the academic year had to be analyzed during the summer, and often, results were not available in time to be useful in planning the next academic year; furthermore, it was never the intention of the research team to interfere with the conduct of the program. It was felt, instead, that the most valuable role of the researchers was to provide analyses that would be suggestive of different approaches to teaching-learning problems.

SUMMARY OF RESEARCH FINDINGS

Intelligence Factors

A standard intelligence testing program was instituted during the first year of the research process and was continued to the conclusion of the funded period. The intelligence testing program was conducted mainly for the following purposes:

1. To test the validity, reliability, and value to teachers of various, frequently used, measures of intelligence.

2. To provide teachers with basic information concerning the various cognitive strengths and weaknesses of all new program entrants.

3. To study the relationships of measured I Q to demographic and learning factors.

4. To determine whether the program had a significant measurable effect on I Q.

In regard to purposes one and two, the Stanford-Binet Intelligence Scale (SBIS), the Slossen Intelligence Test (SIT), the Peabody Picture Vocabulary Test (PPVT), and the Wechsler Preschool and Primary Scale of Intelligence (WPPSI) were administered and the results compared. It was determined that the Stanford-Binet Intelligence Scale provided the most valid and reliable scores and, to a greater extent than did any of the other instruments, provided information of value to teachers in planning individual programs and experiences for children.

The PPVT tended to greatly underestimate the intellectual functioning level of new entrants and placed a disproportionate percentage of children in the mentally defective category. Because of this characteristic, the instrument tended to reflect large gains from pre- to posttesting. The described situation could easily lead one to faulty conclusions concerning program effectiveness.

The SIT yielded scores that were much more in keeping with the SBIS, but the test was rather insensitive to change in cognitive functioning. More importantly, the SIT did not lend itself to analytic processes that could be translated into helpful information for instructional purposes.

The WPPSI was administered on a less formally structured experimental basis. The results indicated that EIP children did not respond well to the test. The instrument was evaluated as producing important underestimations of the intellectual functioning level.

Because of the homogeneity of the population, the answers concerning the third purpose were mixed. It was found that intelligence among boys was positively correlated to the father's occupational classification; girls I Q was correlated with the mother's educational level. Further, it was found that there was a negative correlation between I Q and number of hours of television viewing. The study strongly suggests that I Q's tend to be lower among those children who view television for 20 hours or more each week.

Correlational studies using SBIS I Q's and Metropolitan Readiness Test (MRT) scores given yearly to five year olds tended to be highly positively correlated at beyond an r of .80. Even though the MRT is criticized as being outdated and unfair to disadvantaged children, it remains a rather fair predictor of future academic success.

In regard to objective four, during the four years of the research program, the average enrollee obtained an I Q score of approximately 85.5 on the pre-test and 94.5 on the posttest. The average I Q gain from pre- to posttest w as statistically significant beyond the .01 confidence level. It was further determined that white enrollees obtained approximately a five point I Q advantage on the pretest and maintained the same advantage on the post-test. There were no significant differences between male and female I Q scores. Four year old entering children obtained non-significantly higher I Q scores than five year olds on the pretest and tended to increase the margin of difference on the posttest.

On the pretest EIP children averaged about 10 percent of the total sample in the 67 and below I Q range as compared to about two percent in the general population; EIP children averaged more than 30 percent in the 68-83 I Q range as compared to 14 percent in the general population; and there were comparatively smaller percentages in the average and above average I Q ranges as compared to the population-at-large.

Pre- and posttest analyses of SBIS scores for the years 1967-68 and 1970-71 show a considerable variance when compared to normative data. Table 1 contains the comparative percentages and normative percentage expectancies.

TABLE 1

Percentage Comparisons of 1967-68 and 1970-71
EIP SBIS Scores to National Norms

	Norm Population %	Pretest EIP 1967-68	Posttest EIP 1967-68	Pretest EIP 1970-71	Posttest EIP 1970-71
67 and Below (Retarded)	2	13	8	8	1
68-83 (Borderline Defective to Dull Normal)	14	34	24	31	17
84-116 (Average)	68	51	60	60	78
117-132 (Superior)	14	2	8	1	3
133-145 (Gifted)	2	-	-	-	1

The table indicates that EIP children have significantly smaller percentages of individuals in the above average range than is found in the general population. Since the total mean comparison for the two years was similar, it appears that the program succeeded admirably in providing a program that effectively reduced the high percentage of children in the below average intellectual categories.

Perception Building Programs and Readiness Testing

Most EIP children demonstrate major weakness in the area of perpeptual acuity. In efforts to overcome these deficiencies, various combinations of programs were attempted. These experimental approaches included the total Frostig Perception Building Program, modified Frostig programs, and a Kephart-like exercise program. The experimental program in which the total Frostig Perceptual Building Program was used was found to be most effective in building perceptual acuity as measured by the Frostig tests. The other combinations and the control groups were much less successful.

TABLE 2

Pre- and Posttest t Comparisons of Experimental and Control Groups on the Frostig Test

Test 1 - Eye-Motor Coordination		
Group 1 (Total Frostig Program) Pre- Posttest t = 3.81		.01
Group 2 (Partial Frostig Program) Pre- Posttest t = 1.39		N.S.
Group 3 (Kephart-like Exercises) Pre- Posttest t = -1.41		N.S.
Group 4 (Control Group - No Program) Pre- Posttest t = -.54		N.S.
Test 2 Figure-Ground Relations		
Group 1	t = 4.70	.001
Group 2	t = 2.45	.05
Group 3	t = 1.50	N.S.
Group 4	t = 1.11	N.S.

Table 2 (Continued)

Test 4 Position in Space		
Group 1	t = 4.29	.001
Group 2	t = 2.61	.05
Group 3	t = 2.26	.05
Group 4	t = 1.55	N.S.
Test 5 Spatial Relations		
Group 1	t = 5.73	.001
Group 2	t = .89	N.S.
Group 3	t = 2.88	.01
Group 4	t = -.05	N.S.
Test 6 Perceptual Quotient		
Group 1	t = 2.94	.01
Group 2	t = 2.44	.05
Group 3	t =	N.S.
Group 4	t =	N.S.

In relating perception building programs to reading readiness, the same groups were utilized, and the Metropolitan Readiness Test scores compared. The results indicated that group one made the highest MRT scores, group two the next highest, group three the third highest, and the control group lowest; however, only two subtest scores differentiated between the mean scores at a significant level. These two subtests were matching and copying. Experimental groups one and two scored significantly higher than groups

three and four; group one's score was significantly higher at the .01 level and group two at the .05 level.

Perception building programs were evaluated as being a worthwhile part of the preschool curriculum even though they had limited effects upon reading readiness.

Student Factors

Three studies, other than the strictly statistical ones involving demographic factors, were conducted to evaluate laterality and self-concept.

Proceeding upon the psychoanalytic assumption that the father figure is important during the third psychosexual stage of development, it was felt that there might be a greater incidence of left handedness and mixed laterality among the EIP children than in the general population since approximately one-third of EIP enrollees came from father-absent homes. The results of the research indicated that approximately 10 percent of the EIP students were left handed which is within the normal estimated range for the general population; however, there did appear to be a very high percentage of students who possessed mixed laterality. Further analysis indicated that there were no statistically significant differences between measured I Q and handedness or between reading readiness as measured by the MRT and handedness.

Two studies of sex-role identification were conducted. These studies were conducted with the knowledge that approximately one-third of the children came from father-absent homes, and the prediction was made that

there would be a high incidence of sex confusion among EIP children. The surprising result was that EIP males compared to middle-class males were not significantly different as measured by the scale devised to measure sex-role identification. A fairly large number of EIP females scored in a somewhat masculine direction as compared to a middle-class population of females.

In the second sex-role identification study, four male college students were employed to work in the EIP program with black children in a variety of situations. The findings indicated that the male models were more effective in bringing about desirable sex-role changes among boys than among girls. Since both black and white male models were employed, the race factor of the models was studied as to the effect it had on changes. A statistical analysis revealed that the race of the male models played no significant role in changes or lack of change.

Research Related to Methods and Materials

Several projects were undertaken in efforts to determine if intervention superiority could be claimed for various instructional materials.

Speech clinicians at the University of Alabama indicated that approximately 75 percent of the EIP children demonstrated speech needs in the following areas: word endings, sound omissions, sound substitutions, and sound distortions. Two studies were conducted to investigate the effect of the Language Master upon problems related to speech. In the first study,

six classrooms of children were randomly selected to participate in the program. Three groups were randomly selected as experimental and three as contro. groups. The experimental groups received a systematic three month daily training routine which utilized the Language Master Program. At the conclusion of the program both experimental and control groups were tested for speech problems, and no significant differences were attained in improvement rates between the treatment groups.

A follow-up study was conducted using the Language Master Program with an experimental group exhibiting specifically defined speech defects. The control groups consisted of children with similar speech defects. The control groups participated only in routine classroom activities. Each child in the experimental group received an individually administered daily program of work on the Language Master.

Posttest results indicated that there were no statistically significant differences in regard to numbers who had overcome speech difficulties in either the experimental or control groups; furthermore, no specified speech impediment was reduced significantly more through the use of the Language Master Program than through normal classroom procedures.

The Peabody Language Development Kit was utilized in one research study in order to note its effect upon general intellectual functioning as measured by the SBIS and general achievement as measured by the Preschool Inventory (PI). Six classrooms of children were randomly selected; three

were designated as control groups that were to receive the normal classroom program. The experimental groups participated in a daily PLDK program from September, 1968, to May, 1969.

Posttesting indicated no statistically significant differences in experimental or control group mean scores on either the SBIS or PI.

In general, special procedures — equipment or material — with the exception of the Frostig Perception Building Program were unable to generate statistically significant differences in the tested behavior of children.

Teacher Personality Factors

One research study was conducted to determine the effect of teacher personality upon the measured reading readiness, intelligence, and self-concept of EIP children.

All teachers were administered a variety of personality measurement instruments. The teachers' personalities were grouped into three distinct categories; each was considerably different from the others. The students of these teachers were then compared on the basis of self-concept, I Q, and and reading readiness.

Teacher personality factors did not play a statistically significant role in students' reading readiness, self-concept, or I Q. There was some evidence, although not statistically significant, that teacher personality factors did influence reading readiness. This area needs to be explored further.

EIP teachers were also administered a teaching attitude and opinion inventory which had been administered to a large number of teachers throughout the state of Alabama. Compared to Alabama teachers in general, EIP teachers responded on the inventory in a manner that showed them to be more child-centered, flexible, democratic, and positive in attitude. In so far as the attitudes that EIP teachers expressed in answering inventory items represent their true beliefs, the hypothesis that the failure of EIP children to make more significant gains was a function of the teachers' attitudinal characteristics must be rejected.

Follow-up Studies

Follow-up studies comparing former EIP children to children from similar backgrounds who had not had a preschool program indicate that EIP children enjoy a statistically significant superiority at first grade level. Data relating to second and third grade reflect a diminishing (if any) advantage.

CONCLUSIONS

The first generalization that may be drawn from the extensive research that was conducted at the Education Improvement Program in Huntsville, Alabama, is that such preschool programs may and frequently do have positive effects on the cognitive functioning of economically deprived children. However, there is no single program, curriculum, or approach that appears to provide outstanding advantages. Materials and supplies of an almost unlimited quantity do not necessarily provide quality programs.

It would appear that the traditional "socialization" approach to preschool programs is inappropriate for children from economically disadvantaged homes. There is supportive evidence, although not always statistically significant, that some structuring toward gaining skill in perception, problem solving, and self-control leads to significant contributions for the children both in the present and in the future.

Furthermore, such programs are likely to be more beneficial when children start at an earlier age than five, and when the total spectrum of the child's needs are adequately met.

Because of the great variation in achievement found in the test scores of children who had been exposed to different teachers, even when intellectual and other factors were held constant, it appears that much more attention

should be given to ability factors before teachers are employed. Investigation supported the conclusion that it was not necessarily the equipment, materials, or methods the teachers used that caused differential achievement among children. Instead teacher personality factors, organizational skills, and teaching ability appeared to play the decisive role in children's performance. Observations made of classroom procedures and of reactions to teacher in-service meetings tended to point to morale and commitment to the programs as highly influential factors influencing teachers' reactions to the program and their attitudes toward the children. While this is likely to be true of any educational system, it may be of considerably more importance in programs such as EIP because of their experimental nature and the ambiguity and disagreement that exists in regard to focus and outcome.

The second major conclusion drawn from the EIP data is that drastic, immediate, and permanent changes should not be expected. Regardless of claims to the contrary, programs for economically deprived children possess no properties of magic. While it is true that there is a reversal of downward trends in cognitive functioning, dramatic increases are the exception rather than the rule. Furthermore, the gains that children make under these circumstances are tenuous and easily undermined by altered environmental circumstances. Such programs will undoubtedly need to be continued over a long period before the effects of deprivation are overcome to any significant degree.